

Remarks

Original amended claims 1 - 17, 18 - 19, 21 - 23, 24 - 36, 37 - 43, 45, 47 and 48 - 55 as well as new claims 64 - 95 are pending. The present application is a continuation of parent application serial no. 08/934,844, which is now allowed.

No new matter has been added by this amendment.

The present claims are more particularly directed to those aspects of the invention that relate to systems and methods for intelligently routing communications signals (including xDSL based signals) over a variety of connections, including dedicated permanent switched circuits and packet switched circuits. As the prior art does not disclose or suggest such claimed inventions, Applicants submit that the pending claims should be allowable.

A fee transmittal sheet is enclosed; please charge any additional filing fees for the extra claims submitted herewith to deposit account no. 501-244.

Respectfully submitted,



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I hereby certify that the foregoing is being deposited with the U.S. Postal Service, postage prepaid, to the Commissioner of Patents and Trademarks, this 13th day of November, 2001.

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VERSION WITH MARKINGS TO SHOW CHANGES TO CLAIMS

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1. (Amended) A system for establishing an end-to-end data path connection to transfer data between an origination site and a destination site, said system comprising:
 - [a] an interface circuit for receiving physical data signals and data routing configuration information through a transmission channel coupled to said origination site;
 - [b] a data routing control circuit, for setting up a data route between said origination site and said destination site based on the data routing configuration information; and
 - [c] an access router for routing said data through the data route;
 - [d] a dialing logic circuit for performing call setup and tear down operations based on said data routing configuration information;
 - [e] a public switched telephone network (PSTN) interface for transmitting pulse code modulated voice data received from said origination site directly to a PSTN switch;wherein said data path connection is formed by the data route, and can include any one or more of the following data paths: (i) a switched circuit network, including one or more PSTN circuits; and/or (ii) a wide area network (WAN); and/or (iii) one or more digital cross-connects.
 2. (Original) The system of claim 1, wherein the data routing configuration information can include information pertaining to whether a time sensitive data path connection is required.
 3. (Original) The system of claim 2, wherein the data routing control circuit routes time sensitive data through the switched network, the digital cross-connect, or some other available data path other than the wide area network.
 4. (Original) The system of claim 2, wherein the data routing control circuit routes non-time sensitive data through the wide area network or some other available data paths other than the switched network and digital cross-connects.
 5. (Original) The system of claim 1, wherein the data routing configuration information can include information pertaining to a desired target data rate.
 6. (Original) The system of claim 5, wherein the data routing control circuit dynamically determines a maximum target data rate of available data paths and sets up said data path connection based on this determination.
 7. (Original) The system of claim 1, wherein the data routing configuration information can include information pertaining to costs associated with setting up the data path connection.

8. (Original) The system of claim 7 wherein the data routing control circuit dynamically determines a cost associated with available data paths, and sets up said data path connection based on this determination.
9. (Original) The system of claim 1, wherein the data routing configuration information can include information pertaining to the connection model used at the origination site, including whether such site utilizes a dial-up or always-on connection.
10. (Amended) The system of claim 1, wherein the data routing control circuit dynamically determines which available data paths are best suited for the connection model used at the origination site, including whether the origination site is using a dial-up modem and/or a network connection.
11. (Original) The system of claim 1, wherein the transmission channel is a digital subscriber loop (DSL).
12. (Original) The system of claim 11, wherein the interface circuit also separates the data into voice signals and DSL signals.
13. (Amended) The system of claim 12, further including a pulse code modulation circuit for converting [the] voice signals into [digital voice signals] said PCM voice data for routing through the PSTN switch [switched network].
14. (Amended) The system of claim 1, further including: (i) [a circuit switched network interface circuit; (ii)] a wide area network interface circuit; and [(iii)] (ii) a digital cross-connect interface circuit.
15. (Original) The system of claim 1, wherein the WAN can be selected for setting up a high speed data link in excess of 128Kb/s.
16. (Original) The system of claim 1, wherein the WAN optionally transfers data using any or all of the following: packet switching, frame relay, and asynchronous transfer mode (ATM).
17. (Amended) The system of claim 1, wherein [the public switched telephone network (PSTN)] said PSTN switch can be selected to transfer time sensitive data by setting up one or more dedicated 64Kb/s links.

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18. (Amended) A system for establishing a data path connection between an originating site and a destination site, [said originating site being coupled to said destination site both through a first data path having minimal data transmission delay characteristics and a second data path having substantially greater data transmission delay characteristics, said] the system comprising:
- [an interface circuit for receiving data path connection configuration information from said originating site; and]
- [a setup] an access select circuit for setting up [said] a first path and/or [said] a second path as [said] the data path connection based on [the] connection configuration information received from the originating site; and
- wherein said first path includes a public switched telephone network (PSTN) and/or digital cross-connects (DCS) and said second path includes a wide area network (WAN);
- a pulse code modulation circuit for converting voice signals from the origination site into pulse code modulated voice data suitable for transmission over a PSTN switch; and
- a data access router coupled to and controlled by said access select circuit for routing communications between the originating site and the destination site over said first path and/or said second path; and
- said data access router being further coupled to a PSTN interface, a DCS interface and a WAN interface for transmitting said communications over said first and/or second paths.
19. (Original) The system of claim 18, wherein said connection configuration information can set up said first path as said data path connection for time sensitive data signals, and can further set up said second path as said data path connection for any other data signals.
- 20. CANCELED**
21. (Original) The system of claim 18, wherein the data routing configuration information can include information selecting one or more of the data routes, as well as a target data rate.
22. (Amended) The system of claim 18, wherein both the originating and destination sites are coupled by digital subscriber loops to said first and second data paths[, and the setup circuit further sets up a data rate for said data path connection based on a target data rate from said originating site, data transfer rate capabilities of said first and second data paths, and data transfer capabilities of the digital subscriber loops].
23. (Amended) The system of claim 18, wherein [the] a data rate for the data patch connection is [also] based on data processing capabilities of said originating and destination sites.

37. (Amended) A system for routing digital subscriber loop (DSL) data from an originating site to a destination site through a configurable data route, said system comprising:
- [a] an interface circuit for receiving [said] the DSL data through a transmission channel coupled to said originating site; and
 - [b] a conversion circuit for converting [said] the DSL data into routable data signals; and
 - [c] an access circuit for setting up the configurable data route [routing said routable data signals through said data route] to said destination site;
- wherein the data route can be configured to include either or both of a first data path and second data path; and
- further wherein the first and second data paths have associated first and second data transmission delay characteristics and first and second data transfer rate characteristics;
- [d] a router circuit for transmitting said routable data signals over the first data path and/or said second data path, including a public switched telephone network switch.
38. (Original) The system of claim 37, wherein said first data path includes a switched network and/or a digital cross-connect, and said second data path includes a wide area network.
39. (Amended) The system of claim 38 wherein the [access circuit] router routes time sensitive routable data signals through the switched network or the digital cross-connect.
40. (Amended) The system of claim 39 wherein the [public switched telephone network (PSTN)] access circuit transfers DSL data over the PSTN by setting up one or more dedicated high speed circuit switched connections.
41. (Amended) The system of claim 40, wherein the [access circuit] router routes the routable data signals that are not time sensitive through the wide area network.
42. (Amended) The system of claim 38, wherein the access circuit sets up the second path for data transfers requiring a transfer rate in excess of the first data transfer rate.
43. (Original) The system of claim 38, wherein the WAN transfers data using frame relay and/or asynchronous transfer mode data packet switching.
44. **Cancel**
45. (Amended) The system of claim 37, wherein said [the] interface circuit also separates [the data into] voice band signals and DSL signals from the originating site.
46. **Cancel.**
47. (Original) The system of claim 37, further including: (i) a switched network interface circuit; (ii) a wide area network interface circuit; and (iii) a digital cross-connect interface circuit.

48. (Amended) A method for accessing a communications system from an originating site, said system having access to a first data path having first data transmission characteristics and a second data path having second data transmission characteristics for transferring data, said method including the steps of:
- [a] initiating an access request to said communications system, the access request including information concerning requested data transmission characteristics for a desired data transfer; and
 - [b] determining whether the access request is related to a request for voice signal transmission or a data signal transmission; and
 - [c] selecting and configuring a data route for data transfer to a destination site using [said] first and/or second data paths by determining which of [said] first and second data transmission characteristics best matches the requested data transmission characteristics; and
 - [d] transferring data between the originating site and said destination site by using a virtual packet switched circuit connection and/or a virtual permanent circuit connection for the first and/or second data paths respectively.
49. (Original) The method of claim 48, wherein said first data path is selected and configured when the access request is related to a voice signal, and either or both of said first and second data paths are selected and configured when the access request is related to a data signal.
50. (Original) The method of claim 48, wherein the first and second data transmission characteristics can include any one or more of the following:
- (e) availability of such data path; and/or
 - (f) cost per unit of transmission bandwidth of such data path; and/or
 - (g) data transfer rates achievable using such data path; and/or
 - (h) data transfer delays of such data path.
51. (Original) The method of claim 48, wherein the data route can be configured during step [c] based on data transfer rate capabilities of the destination site, said originating site, and the first and second data paths.
52. (Original) The method of claim 48, wherein during step [c] the data route can be selected such that time sensitive data signals are routed through said first path, and non time sensitive signals are routed through said second path.

53. (Original) The method of claim 48, wherein during step [c] the data path having the least cost per unit of transmission bandwidth can be selected for the data route.
54. (Original) The method of claim 48, wherein said first data path is a circuit switched network and/or a digital cross-connect, and said second data path is a wide area network.
55. (Original) The method of claim 48, wherein the access request includes a distinct signaling message for indicating a request for data signal transmission.

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